

Saddleback Ridge Wind, LLC // Natural Resource Protection Act (NRPA) and Site Location of Development Act applications

- Draft Proposed Board Order



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
State House Station 17 AUGUSTA, MAINE 04333

BOARD ORDER

IN THE MATTER OF

SADDLEBACK RIDGE WIND, LLC.) SITE LOCATION OF DEVELOPMENT ACT
Carthage, Canton and Dixfield) NATURAL RESOURCES PROTECTION ACT
Franklin and Oxford Counties)
SADDLEBACK RIDGE WIND PROJECT)
L-25137-24-A-Z (denial of appeal)) APPEAL
L-25137-TG-B-Z (denial of appeal)) FINDINGS OF FACT AND ORDER

Pursuant to the provisions of 38 M.R.S.A. § 344 (2-A) and 341-D (4) and Chapter 2, § 24 (B) of the Department of Environmental Protection's regulations, the Board of Environmental Protection has considered the appeal and request for a public hearing of the Friends of Maine's Mountains, Friends of Saddleback Mountain, Rand Stowell, and other persons who join in the request for a public hearing (collectively "appellants"), the material filed in support of the appeal, the response of the licensee, and other related materials on file and FINDS THE FOLLOWING FACTS:

1. PROCEDURAL HISTORY:

On October 26, 2010, Saddleback Ridge Wind LLC. (licensee) filed Site Location of Development Act (Site Law) and Natural Resources Protection Act (NRPA) permit applications to construct a wind energy development known as the Saddleback Ridge Wind Project, in the Towns of Carthage, Canton and Dixfield. The licensee proposed to construct a 33-megawatt (MW) wind energy generation facility, which is an expedited wind energy development as defined by the Wind Energy Act, 35-A M.R.S.A. § 3451 (4). In the original application the proposed development consisted of the construction of: 12 General Electric 2.75-100 wind turbines (2.75 MW each) along the ridgeline of Saddleback Ridge with associated access roads, transmission lines, an operations and maintenance building and associated facilities as shown on the plans submitted by the licensee.

During the review of the project, the Department requested and received reviews from other state agencies including: Maine Department of Inland Fisheries & Wildlife (MDIFW), Maine Historic Preservation Commission, Maine Natural Areas Program, Maine Public Utilities Commission, Maine Department of Conservation (Bureau of Parks and Lands) and the Department's Division of Watershed Management and Division of Environmental Assessment. The Department also hired an independent noise expert, EnRad Consulting (EnRad), to review the evidence regarding noise and an independent scenic expert, Scenic Quality Consultants, to review the evidence regarding potential impacts on scenic character.

On December 10, 2010 the Department received a request for a public hearing filed by attorney Rufus Brown on behalf of Friends of Maine's Mountains (FOMM) and other interested persons listed in the filing. The Department denied this request in a letter from James Brooks, Acting Commissioner, dated January 21, 2011.

On March 10, 2011, the Department held a public meeting in the Town of Dixfield pursuant to 38 M.R.S.A. § 345-A (5) to provide interested persons with an opportunity to comment on the application and submit information into the Department's record. The Department received comments from many interested persons, including some of the appellants, during the Department public meeting. Additionally, the Department received evidence from interested persons throughout the review of the applications.

On March 17, 2011, the licensee requested a modification of the application to use GE 2.75-103 turbines, with a new blade design which would reduce the noise output of the turbines. The licensee submitted revised application materials addressing noise, shadow flicker, and scenic impact, to reflect the new blades.

On July 5, 2011, the licensee requested a modification of the application to withdraw from the application the CMP portion of the proposed substation off the Ludden Lane in Canton, and the approximately 1,000 feet of transmission line which will connect the substation to the existing CMP Section 229 transmission line.

On September 27, 2011, the Department issued a draft order for public comment. The appellants and other members of the public submitted comments on the draft order.

The Department approved the permit applications to construct the Saddleback Ridge Wind Project in Department Order #L-25137-24-A-N/L-25137-TG-B-N dated October 6, 2011. On November 7, 2011 the appellants filed an appeal of the Department's decision to the Board.

2. AGGREIVED PERSONS:

The Friends of Maine's Mountains (FOMM) is a non-profit organization dedicated to protecting the mountain regions of Maine from various threats to their natural and human environments. FOMM states that it owns property that abuts the proposed project site, including the summit of Saddleback Mountain. Friends of Saddleback Mountain (FOSM) is a non-profit organization registered with the State of Maine that was formed for the purpose of promoting a series of hiking trails connecting Saddleback and Bald Mountains, including the Public Reserve Land in Perkins Township, to Mount Blue State Park. FOSM members include residents and frequent users of the Saddleback Mountain area. Rand Stowell resides on property abutting the shore of Webb Lake with a view of the project area. Mr. Stowell uses the lake for swimming, boating, skating and skiing. The appeal is also joined by a number of property owners whose properties are included as Receiver Points in the Applicant's Noise Impact Study.

Each of the persons mentioned above describes specific concerns regarding the construction of the Saddleback Ridge Wind Project and the Board finds that they have described how they would be injured by the licensing decision and demonstrated they are aggrieved persons for the purpose of this appeal as defined in Chapter 2 § 1(B) of the Department's Rules Concerning the Processing of Applications and Other Administrative Matters.

3. BASIS FOR APPEAL:

The appellants assert that the Department erred in making the following findings:

- A. Noise: The licensee made adequate provisions to ensure that noise standards pursuant to the Site Location of Development Rules, Chapter 375(10) were met;
- B. Scenic Character: The proposed project will not have an unreasonable adverse effect on the scenic character of scenic resources of state or national significance or related existing uses; and
- C. Tangible Benefits: The proposed development will provide significant tangible benefits to the host community and surrounding area.

4. REMEDY REQUESTED:

The appellants request that the Board hold a public hearing on noise and visual impact issues and reverse the October 6, 2011 Department decision approving a permit for the construction of the Saddleback Ridge Wind Project in the Towns of Carthage, Canton and Dixfield.

5. REQUEST FOR A PUBLIC HEARING:

The appellants request a public hearing on this appeal before an impartial hearing officer, on the issues of noise and scenic impact to give them the opportunity to present the testimony of Richard James, E-Coustics Solutions, and Dr. Michael Nissenbaum on noise issues, and testimony from Michael Lawrence on visual impact issues, and to offer rebuttal testimony based on testimony of the licensee and its experts.

The permit applications were filed on October 26, 2010. On December 10, 2010 the Department received a request for a public hearing filed by attorney Rufus Brown on behalf of Friends of Maine's Mountains (FOMM) and other interested persons. The hearing request included information related to the potential noise impacts of the proposed project as well as the potential scenic impacts and other issues. The Department denied this request in a letter from James Brooks, Acting Commissioner, dated January 21, 2011. As stated in the January 21 letter, much of the information submitted in the request had been considered in previous application proceedings, and to the extent the request included new information the Department found that it was not sufficient to warrant a public hearing.

In consideration of the level of public interest in wind power projects, the Department held a public meeting pursuant to 38 M.R.S.A. §345-A (5). The purpose of this meeting was to provide interested persons and the general public with an opportunity to comment on the application and submit information into the Department's record. The Department held the public meeting on March 10, 2011 at Dirigo High School in the Town of Dixfield, Maine. Members of the public offered comments and asked questions at the meeting. A transcript of the public meeting was prepared, and this transcript and all documents offered at the public meeting are a part of the record for this application. The Department also received numerous other letters and documents regarding specific aspects of the proposed project during the application review period.

The record reflects that during the 11-month period of the review of the applications, the appellants had the opportunity to present information and argument to the Department and availed themselves of that opportunity both at the public meeting and through the submission of information during the review process. The appellants' submissions included reports and affidavits prepared by Richard James, E-Coustics Solutions, and Dr. Michael Nissenbaum on noise issues, and from Michael Lawrence on visual impact issues, the witnesses the appellants wish to have testify at a hearing.

The Department issued a draft order for public comment on September 27, 2011. The comment period on the draft order closed on October 4, 2011. The licensee, the appellants and other members of the public submitted comments on the draft order.

The Board has considered the information contained in the permitting record, the arguments of the appellants, and the licensee's response. Pursuant to 38 M.R.S.A. § 341-D (4) and the Department's regulations, holding a public hearing is discretionary. In this appeal the Board finds that the evidentiary record is well developed with regard to the statutory criteria. The appellants had the opportunity to submit evidence from Mr. James, Dr. Nissenbaum, and Mr. Lawrence and did so. Mr. James and Dr. Nissenbaum also testified before the Board on wind turbine noise issues in the recent rulemaking proceedings for the Chapter 375 Sound Level Standards for Wind Energy Developments. The appellants had the opportunity to submit evidence in response to the licensee's submittals with regard to noise and visual impacts and the analysis by the Department's noise expert and visual impacts expert. The Board finds that a public hearing in this case is not warranted or necessary to assist the Board in understanding the presented evidence.

6. DISCUSSION AND FINDINGS PERTAINING TO NOISE ISSUES RAISED IN APPEAL:

The appellants argue that the Department erred in its conclusion that the noise generated from the proposed project will not have an unreasonable adverse effect on the surrounding environment based on the following contentions:

- (A) The Department failed to provide due process and protect the liberty interests under the Maine and U.S. constitutions of several of the appellants because the project has the capacity to impact their health and diminish the value of their property to the extent that it generates excessive noise;
- (B) The Department failed to require the licensee to model nighttime stable atmospheric conditions with high wind shear above the boundary layer and other conditions that may affect in-flow airstream turbulence and the Department allowed the applicant to use Noise Reduction Operation (NRO) achieve compliance with the nighttime noise standard; and
- (C) The Department should have applied the 42 dBA nighttime standard contained in the provisionally adopted Chapter 375(10)(I) Sound Level Standards for Wind Energy Developments to this project to prevent potential adverse health effects of nighttime noise.

To assess whether the developer of a proposed project has made adequate provision to control noise, the Department has regulations in effect which provide noise level limits for various settings. Chapter 375 §10 sets forth hourly sound pressure level limits (L_{Aeq-Hr}) at a

development's property boundaries and at nearby protected locations. Chapter 375 §10 (G) (16) defines protected locations to include "any location accessible by foot, on a parcel of land containing a residence or approved subdivision..." In addition to residential parcels, protected locations include but are not limited to schools, state parks, and designated wilderness areas.

The hourly equivalent level resulting from routine operation of a development is limited to 75 dBA at any development property boundary as outlined in Chapter 375 § 10 C (1) (a) (i). The hourly equivalent sound level limits at any protected location varies depending on local zoning or surrounding land uses and existing (pre-development) ambient sound levels. At protected locations within residentially zoned areas or where the predominant surrounding land use is residential, the hourly sound level limits for routine operation are lower, 60 dBA daytime (7:00 a.m. to 7:00 p.m.) and 50 dBA nighttime (7:00 p.m. to 7:00 a.m.). Where the daytime pre-development ambient hourly sound level is equal to or less than 45 dBA and/or the nighttime ambient hourly sound level is equal to or less than 35 dBA, lower limits known as quiet location limits apply. For such "Quiet Locations", the hourly sound level limits for routine operation are 55 dBA daytime and 45 dBA nighttime. In all cases, nighttime limits at a protected location apply at the property line of a protected location or up to 500 feet from sleeping quarters when the property line is greater than 500 feet from a dwelling. The proposed project has been reviewed under the Quiet Location noise limits.

A. Due Process, Liberty Interest Constitutional Claims

The appellants argue that several of them have property interests that are entitled to protection from potential diminishment of value due to excessive noise under the due process clauses of the Maine and U.S. Constitutions. They contend that they were denied due process by the Commissioner's decision not to hold a public hearing on the application. The appellants also argue that these individual aggrieved persons also have a constitutional liberty interest in bodily integrity that is entitled to protection from excessive noise that may threaten their health and wellbeing.

Maine Courts have consistently ruled that procedural due process is a flexible concept and that if the process followed by an agency is fundamentally fair and allows participation by interested persons, as the record reflects here, there is no violation of the Constitution. The appellants had ample opportunity, at a public meeting and throughout the Department's consideration of the application, to submit expert testimony and respond to the submittals of the licensee. With regard to the appellants' claim of a violation of the Constitution due to a diminishment of property values, the record does not contain evidence demonstrating those claims, and the Due Process clause has not been interpreted by the Courts to protect against a claim of the loss of value to property adjoining a development approved by the State.

The appellants' claim of a Constitutional violation based on a liberty interest in bodily integrity also does not comport with the Courts' use of the Due Process clause, and this approval of a project which meets duly adopted noise regulations does not constitute a "state created danger." The record includes credible scientific evidence in support of the Department's findings, and the Department has reviewed studies showing that the noise levels allowed under the current rules would not result in adverse health effects.

B. Sound Level Prediction Model and Noise Reduction Operation Mode

The appellants argue that the Department should have required the licensee to model the sound from the proposed project under assumptions of nighttime stable atmospheric conditions with high wind shear above the boundary layer and other conditions that may affect in-flow airstream turbulence. The appellants argue that this modeling should have been required because it is required in the amendments to Chapter 375 which have been provisionally adopted by the Board. The appellants acknowledge that the provisionally adopted rules have yet to undergo the legislative review process, but urge the Board to utilize discretion and apply this provision here. The appellants further argue that if the sound from the project had been modeled under these assumptions the project would not have met the standards for Short Duration Repetitive Sounds (SDRS).

In support of its application, the licensee's noise consultant, RSG, Inc., developed a sound level prediction model to estimate sound levels from operation of the proposed project. The sound level study predicts expected sound levels from the proposed project and compares the model results to the operational standards in Chapter 375 (10), the Site Law Rules which are currently in effect. Based on the rural nature of the site, the licensee was required to apply the quiet limits of 55 dBA daytime and 45 dBA nighttime at all nearby protected locations in accordance with Chapter 375 §10 (H) (3) (1).

The licensee's sound level prediction model was developed using the CADNA/A software program performing calculations in accordance with generally recognized standards for estimating the propagation of sound in the environment promulgated by the International Standards Organization (ISO) as Chapter 9613-2, *Attenuation of Sound During Propagation Outdoors*. CADNA/A uses three dimensional terrain, proposed wind turbine characteristics and locations plus environmental factors to calculate outdoor sound propagation from the wind turbines. RSG, Inc. calculated sound levels for simultaneous operation of twelve GE 2.75-103 wind turbines at the twelve prospective turbine locations. RSG's modeling assumptions include: all wind turbines operating at maximum sound power levels concurrently, omni-directional downwind propagation, ground absorption factor of $G=0$ (hard ground, perfectly reflective surfaces), no sound absorption from foliage or vegetation, and turbine manufacturer's specifications for maximum sound power level (105.0 dBA) plus a 2 dBA uncertainty factor as recommended by the International Electrotechnical Commission Standard IEC 61400-11.

The use of a ground absorption factor of $G=0$ with no sound absorption from foliage or vegetation overestimates sound propagation and in this case was used as an alternative to applying an additional 3 dBA uncertainty factor. RSG stated in a December 20, 2010 memo: "A ground factor of 0 represents hard non-porous ground, like pavement, over the entire modeling area. This results in a ground attenuation factor (A_{gr}) of -3 to -4 dB, meaning, in this case, that 3 to 4 dB is added to the overall sound level, depending on frequency, source and receiver height, and propagation distance."

The results of the acoustic model were plotted on a vicinity site plan that shows residential parcels in relation to the project area where the most restrictive sound level limits apply in

relation to the predicted sound output expected to be generated by the facility. The results of the licensee's model indicated that the project would be in compliance with Chapter 375 (10) at the protected locations.

Chapter 375 §10(G)(19) defines short duration repetitive sound as "a sequence of repetitive sounds which occur more than once within an hour, each clearly discernible as an event and causing an increase in the sound level of at least 6 dBA on the fast meter response above the sound level observed immediately before and after the event, each typically less than ten seconds in duration, and which are inherent to the process or operation of the development and are foreseeable." Chapter 375 requires that 5 dBA be added to the observed level of any defined SDRS that result from routine operation of a development.

In the Noise Impact Study submitted by the applicant, RSG observed that while the cause of SDRS is debated, it is likely a function of the different wind speeds at the top and bottom of the rotor (wind shear) and turbulence. RSG stated that it reviewed a year of meteorological data collected from the project site. It found that instances of high wind shear occur less than 5% of the time for all hours. It also found that 76% of the data points are below 0.20 turbulence intensity, with most of those periods above this figure occurring during the day, and that turbulence intensity is highest at the lowest wind speeds when sound output from the turbines is lower. Based on this, RSG concluded that, while it is not possible at this time to calculate the extent of SDRS from the proposed project, its analysis indicates that the project site characteristics are not conducive to common occurrences of SDRS from turbine operation.

The Department retained the services of a third party noise expert, EnRad Consulting (EnRad), to review the sound level study that was submitted by the licensee as well as evidence submitted by the appellants. EnRad reviewed the information submitted related to SDRS and stated that, while SDRS from project operation has not been entirely ruled out, a full year of ridgeline meteorological data suggests it will be of infrequent occurrence. If post-construction monitoring shows that SDRS is occurring due to project operation the 5 dBA penalty would be applied at that time and modifications would be required to ensure compliance with Department rules.

EnRad reviewed the assumptions underlying the applicant's noise impact study. In a technical review memorandum dated January 21, 2011, EnRad found that the proposed noise model with the 2 dBA uncertainty factor and the reflective ground surface assumption results in a reasonable prediction model that estimates the most restrictive receiver position sound levels to be within regulatory limits.

In its January 21 peer review, EnRad concluded in part:

"Wind turbine noise predictive modeling utilizing ISO 9613-2 (1996) algorithms is widely used in the international community. Estimated modeling accuracies for greater than 30 (meter) source height and 1000 (meter) distances are not provided in ISO 9613-2, but numerous authors have presented corrections for wind turbine predictive modeling. It is this reviewer's experience and opinion that appropriately corrected ISO 9613-2

algorithms provide reasonable estimates of "worst-case" wind turbine noise that comply with MDEP Chapter 375.10 noise regulations."

The appellants also object to the Department's approval of the use of Noise Reduction Operation (NRO) to achieve compliance with the noise level limits set forth in Chapter 375 (10). The appellants argue that NRO has not been adequately demonstrated to prevent excessive noise when wind turbines are operating in turbulent conditions. The appellants further argue that use of NRO in predictive modeling limits the ability to use NRO as a mitigation tool after construction.

Forty-five residences and 500-foot buffer locations in the vicinity of the proposed project were modeled for sound levels predicted to result from operation of the project. With the 12 proposed GE 2.75-103 turbines operating at full power, two protected locations are predicted to experience sound levels of more than 45 dBA resulting from the operation of the proposed project. One of these two protected locations is the subject of a noise easement to the applicant, and thus the applicant is exempt from meeting the noise standards at that location. The other location, B 002, is predicted to receive 45.3 dBA at 500 feet from the residence during normal operation. With turbines 8 and 9 operating in the proposed NRO-mode, modeled sound levels at 500 feet from this residence are 45.0 dBA.

In its review for the Department of the licensee's March 17, 2011, revised noise assessment, which predicted the noise output based on the proposed operation of 12 GE 2.75-103 turbines, EnRad commented that the proposed use of NRO for turbines 8 and 9, which the assessment predicts will achieve compliance with the Department rules, is confirmed by RSG by two common methods to account for ground attenuation and modeling uncertainties as employed in MDEP wind turbine project applications. EnRad further commented that, in its opinion, the revised noise assessment is reasonable and technically correct according to standard engineering practices and the Department Regulations on Control of Noise.

As a precaution, the Department required the licensee to follow a post-construction monitoring program and implement a sound level complaint response protocol as outlined in Finding 5 of the Department's Order. If the licensee's post-construction compliance data indicates that the Saddleback Ridge Wind Project is not in compliance with Department noise standards, including SDRS, the licensee is required to submit a revised operations plan that demonstrates that the project will be in compliance with Chapter 375 (10) at all protected locations.

In response to the appellants' argument that NRO should not be accepted by the Board as a method to achieve compliance, the licensee points to technical documentation which they submitted from the turbine manufacturer demonstrating the effectiveness of turbine noise suppression during NRO.

The licensee also argues that the appellants' contentions regarding the accuracy of the sound prediction model have been proven wrong by actual compliance monitoring data from the Stetson Wind Project, which used comparable model inputs to this project. The licensee notes that the Department's sound consultant, EnRad, has stated that the Stetson monitoring

report demonstrates that this sound prediction model, on average, over-predicts sound levels by 2 to 3 dBA at the protected locations.

Because the Department's noise expert, EnRad, is no longer available to advise the Board on this matter, the Department retained the services of another third party noise expert, Tech Environmental, Inc., to review the issues raised by the appellants. Tech Environmental reviewed the arguments submitted by the appellants and the responses submitted by the licensee and found no unresolved noise issues.

The Board has considered the information contained in the permitting record, the arguments of the appellants, and the licensee's response to the appeal. The Board finds that the licensee's sound prediction model is appropriate and incorporates standard methodologies and modeling assumptions and that the licensee incorporated an adequate safety factor into the model. The Board further finds that the operation of wind turbines in noise reduction operation mode is a reasonable method of adjustment to meet the standards contained in the Department's Noise Regulations, and the record contains credible evidence that this method will reduce noise levels adequately. The Board finds the evidence in the form of the results of the licensee's revised sound level study indicate that sound levels following the proposed noise reduction operation mode of the Saddleback Ridge Wind Project will meet the Department's nighttime 45 dBA hourly equivalent limit at all protected locations. This finding is based in part on the Department's experience with the modeling and its reliability and also in part on the assessment of EnRad in its review of this applicant's revised noise study. Based on the conservative assumptions built into the model, including the use of the reflective ground surface assumption in addition to the turbine manufacturer's recommended margin of safety of 2dBA, and based on the Stetson results of actual operation noise being below that which was predicted using a comparable model, the Board finds that the applicant has demonstrated that, with proposed turbines numbered 8 and 9 operated in the noise reduction mode at night, the proposed project will meet the standards of section 10.

The Board finds that the Department's requirement of post-construction monitoring, inclusive of SDRS, is an adequate safeguard to ensure that the project adequately controls noise should the predictions of the applicant's noise modeling prove inaccurate. If SDRS is found to be occurring during operation of the project, the licensee must apply the appropriate penalty to the measured sound levels and revise the operation plan to be in compliance with Chapter 375 (10).

C. Choice of Noise Standard, Health Impacts

The appellants argue that the Department should have applied the 42 dBA nighttime standard contained in the provisionally adopted Chapter 375(10)(I) Sound Level Standards for Wind Energy Developments to this project. The appellants contend that the provisional rules reflect the latest health based reports and studies concerning the potential health impacts of wind turbine noise. The appellants cite evidence presented to the Board in the course of that rulemaking to argue that adverse health impacts from wind turbine noise may be experienced at levels below 45 dBA. The appellants request that the Board exercise its authority under Chapter 375 Section 10(E) which provides in part: "The Board may, as a term or condition of approval, establish any reasonable requirement to ensure that the developer has made

adequate provision for the control of noise from the development and to reduce the impact of noise on protected locations.”

In response to the appeal, the licensee argues that the conservative sound model used to predict the sound impacts of this project overestimates noise impacts by 3-5 dBA and, that as a result, the actual sound from the project will be within the nighttime sound limit of the provisionally adopted rule. The licensee also argues that the provisionally adopted rule codifies a less stringent modeling protocol that permits applicants to reduce modeling uncertainty inputs in recognition of the model’s demonstrated over-prediction of sound emissions at operating wind power projects. The licensee asserts that the calibration of modeling parameters included in the provisionally adopted rule means that wind power projects permitted under the new rule will produce functionally similar sound levels as those projects permitted under the existing Chapter 375(10) limits coupled with highly conservative modeling assumptions as in this project. The licensee argues that the provisionally adopted rules are not yet in effect and the applicable regulatory standards for the present project are contained in the current Chapter 375. The licensee also contends that the language of Chapter 375(10)(E) does not provide authority to disregard the applicable numerical regulatory limits.

As noted above, the Department hired an independent noise expert, EnRad, to assist the Department in its review of the evidence pertaining to noise. Also as noted above the use of a ground absorption factor of $G=0$ with no sound absorption from foliage or vegetation overestimates sound propagation and is used as an alternative to applying an additional 3 dBA uncertainty factor. EnRad reviewed the original, October, 2010, RSG Noise Impact Study and submitted a Noise Impact Study Peer Review dated January 21, 2011. In a technical review memorandum dated January 21, 2011, EnRad found that the proposed noise model with the manufacturer’s recommended 2 dBA uncertainty factor and the reflective ground surface assumption results in a reasonable prediction model that estimates the most restrictive receiver position sound levels to be within the applicable regulatory limits with five turbines operating in NRO. EnRad also reviewed the revised Noise Impact Study dated March 17, 2011, and submitted additional comments dated May 4, 2011 which found that the now proposed GE 2.75-103 turbines would achieve the applicable regulatory limits with two turbines operating in NRO.

The Board has considered the arguments of the appellants, the licensee’s response to the appeal and the information on this issue contained in the permitting record. The rules provisionally adopted by the Board must undergo legislative review and may receive approval or may be altered by the Legislature before the Board votes on final adoption and they then go into effect. The Board finds that the applicable nighttime noise limit for this project is the 45 dBA standard contained in the current Chapter 375 rules. If the Board was convinced under specific facts that requiring lower sound levels in the modeling results was necessary in order to achieve adequate control of noise from a development the Board could do so under Chapter 375(10)(E). However, the Board finds that the Chapter 375 standards currently in effect should adequately control noise due to the reliability of the model and the facts and assumptions used by the applicant in its modeling. The Board finds that the modeling used to predict the sound from this project, incorporating a 2 dBA uncertainty factor and a reflective ground surface assumption, is reasonably conservative and likely to

over predict the noise actually generated by the project. Based on this evidence, and the evidence supporting the determination that the Department's noise limits will be met, the Board finds that the project is not anticipated to cause health impacts as a result of unreasonable noise produced by the project.

6. DISCUSSION AND FINDINGS PERTAINING TO SCENIC CHARACTER ISSUES RAISED IN APPEAL:

The appellants assert that the Department erred in its finding that the project would not have an unreasonable adverse effect on the scenic character, existing uses related to scenic character, or other existing uses in the area based on the following contentions:

- (A) The evaluation criteria for assessing visual impact under the Wind Energy Act requires rulemaking to avoid an unconstitutional delegation of legislative discretion;
- (B) The Wind Energy Act creates an unconstitutional, irrebuttable presumption that only great ponds listed in the Maine's Finest Lake Study Qualify as Scenic Resources of State Significance;
- (C) The visual impact assessment is deficient because it does not consider the visual impact of the project by those using the Mount Blue State Park to access Webb Lake;
- (D) The visual impact assessment is deficient with regard to the scenic impact of the roads, turbine pads, and other associated facilities; and,
- (E) The scenic impact analysis is deficient because it does not adequately address cumulative effects.

The Wind Energy Act, 35-A M.R.S.A. § 3452 (1), provides in pertinent part that:

In making findings regarding the effect of an expedited wind energy development on scenic character and existing uses related to scenic character pursuant to [the Site Law] or [the Natural Resources Protection Act,] the [Department] shall determine, in a manner provided in subsection 3, whether the development significantly compromises views from a scenic resource of state or national significance. Except as otherwise provided in subsection 2, determination that a wind energy development fits harmoniously into the existing natural environment in terms of potential effects on scenic character and existing uses related to scenic character is not required for approval under [the Site Law.]

Title 35-A § 3452 (3) provides that:

In making its determination pursuant to subsection 1, and in determining whether an applicant for an expedited wind energy development must provide a visual impact assessment in accordance with subsection 4, the [Department] shall consider:

- (A) The significance of the potentially affected scenic resource of state or national significance;
- (B) The existing character of the surrounding area;
- (C) The expectations of the typical viewer;
- (D) The expedited wind energy development's purpose and the context of the proposed activity;
- (E) The extent, nature and duration of potentially affected public uses of the scenic resource of state or national significance and the potential effect of the generating

facilities' presence on the public's continued use and enjoyment of the scenic resource of state or national significance; and

- (F) The scope and scale of the potential effect of views of the generating facilities on the scenic resource of state or national significance, including but not limited to issues related to the number and extent of turbines visible from the scenic resource of state or national significance, the distance from the scenic resource of state or national significance and the effect of prominent features of the development on the landscape.

A finding by the [Department] that the development's generating facilities are a highly visible feature in the landscape is not a solely sufficient basis for determination that an expedited wind energy project has an unreasonable adverse effect on the scenic character and existing uses related to scenic character of a scenic resource of state or national significance. In making its determination under subsection 1, the [Department] shall consider insignificant the effects of portions of the development's generating facilities located more than 8 miles, measured horizontally, from a scenic resource of state or national significance.

Title 35-A § 3452 (4) provides in pertinent part that:

An applicant for an expedited wind energy development shall provide the [Department] with a visual impact assessment of the development that addresses the evaluation criteria in subsection 3 if the [Department] determines such an assessment is necessary in accordance with subsection 3. There is a rebuttable presumption that a visual impact assessment is not required for those portions of the development's generating facilities that are located more than 3 miles, measured horizontally, from a scenic resource of state or national significance. The [Department] may require a visual impact assessment for portions of the development's generating facilities located more than 3 miles and up to 8 miles from a scenic resource of state or national significance if it finds there is substantial evidence that a visual impact assessment is needed to determine if there is the potential for significant adverse effects on the scenic resource of state or national significance...

The proposed Saddleback Ridge Wind Project contains "generating facilities" including wind turbines and towers as defined by 35-A M.R.S.A. § 3451 (5) and "associated facilities" such as buildings, access roads, substations, and generator lead transmission lines as defined by 35-A M.R.S.A. § 3451 (1). Therefore, the proposed project and its associated facilities must be reviewed pursuant to the expedited wind energy development standards outlined above and, to the extent applicable, 38 M.R.S.A. § 484 (3) and § 480-D (1).

The licensee conducted a general visual impact assessment of all viewsheds of the proposed project. In accordance with 35-A M.R.S.A. § 3452 (3) & (4), the Department required that the applicant conduct a visual impact assessment within a three-mile radius of the proposed project. Although not specifically required by the Department, the licensee also conducted a visual impact assessment within eight miles in recognition of the number and variety of scenic resources of state or national significance surrounding the project area. The licensee's visual impact assessment identified scenic resources of state or national significance as defined pursuant to 35-A §3451(9), it analyses the potential impacts the project will have on

scenic resources of state or national significance and it provides visual simulations of the views from those resources.

A. Unconstitutional Delegation of Legislative Discretion

The appellants argue that the evaluation criteria for determining whether a proposed wind energy project will have an unreasonable adverse effect on the scenic character and existing uses of scenic resources of state or national significance contained in 35-A M.R.S.A. § 3452(1) are vague and that they constitute a legislative delegation of authority to an administrative agency that violates the separation of powers doctrine in Article III of the Maine Constitution.

As quoted above, the Wind Energy Act defines the scenic resources which are entitled to protection, by creating categories of scenic resources of state or national significance, some of which are further refined according to geographic location, and designates some specific lists within this categories. It establishes levels of review based on distance from the scenic resource, with a VIA required within three miles, optional from three to eight miles, and not required beyond eight miles. The Act provides guidance on how to consider impacts to these resources, and it creates a presumption that the mere fact that the development's generating facilities are a highly visible feature in the landscape is not a solely sufficient basis for determination that an expedited wind energy project has an unreasonable adverse effect. The Act also sets forth the factors to be considered by the Department in its analysis, such as the relative significance of the potentially affected resource and the scope and scale of the effect of views of a project on a scenic resource.

The Board finds that visual impact criteria of the Wind Energy Act cited above provide it with adequate guidance for its consideration of the present project.

B. Unconstitutional Irrebuttable Presumption

The appellants argue that the use of the Maine's Finest Lakes study to define lakes in the organized territory which are scenic resources of state or national significance in 35-A M.R.S.A. § 3451(9)(D) is arbitrary, capricious and irrational and therefore in violation of the equal protection clause of the United States and Maine Constitutions. In its comments on the draft order, FOMM submitted an assessment prepared by Michael Lawrence and dated October 4, 2011 which argues that Webb Lake meets the criteria underlying the 1989 Maine's Finest Lakes Study and should have been on that list.

The Maine's Finest Lakes study, published by the Maine State Planning Office, Critical Areas Program in October, 1989, adapted the inventory process established by the prior Wildlands Lake Assessment. The Finest Lakes study brought together a team of resource experts from across state government with private resource consultants to work through an eight step process to assess lake resource values under seven resource categories.

The Board finds that the Maine's Finest Lakes Study compiled by the State Planning Office is based on ample evidence compiled by knowledgeable people based on the evidence available, which was considerable, and that it is not arbitrary, capricious or irrational as alleged by the appellants. Neither the Department nor the Board has the authority to add

Webb Lake to the Maine's Finest Lakes list, and the Wind Energy Act's definition of what constitutes a scenic resource of state or national significance must be applied.

C. Webb Lake Use by Mount Blue State Park Users

The appellants argue that the applicant's Visual Impact Analysis (VIA) should have included an assessment of the visual impact on the portions of Webb Lake used by visitors to Mount Blue State Park. The appellants contend that access to Webb Lake is one of the most popular features of the Park and that the presence of the proposed turbines will have an effect on the public's continued use and enjoyment of the Park while swimming and boating from the Park's facilities within the meaning of 35-A M.R.S.A. § 3452(3)(E). Appellants contend that the "related existing uses" language of 35-A M.R.S.A. § 3452(1) requires consideration of use of the lake as a related existing use.

In response to the appeal, the licensee argues that under the Wind Energy Act the impacts under review are solely those that affect the scenic resource of state or national significance. The licensee further argues that there is no indication that even if visual impacts to Webb Lake were included in the Department's determination, such impacts would be so significant as to alter the overall finding that the project complies with the statutory standard. The licensee points out that the Wind Energy Act directs the Department to determine whether a wind energy project will have "an unreasonable adverse effect on the scenic character or existing uses related to scenic character of the scenic resource of state or national significance." 35-A M.R.S.A. § 3452(1). The licensee argues that the clearest, most straightforward reading of this requirement is that it regulates impacts to uses of the designated scenic resource, and does not, as the appellants' claim, regulate impacts to the use of areas related to the use of the designated scenic resource.

Due to the number of scenic resources near the project site with potential views of the project, the Department hired an independent expert, James F. Palmer of Scenic Quality Consultants (SQC), to review the Scenic Character section of the application; to attend the Department's public informational meeting; visit the site; to review information submitted by the interested persons and supplemental evidence submitted by the licensee; and, to provide the Department with review comments. SQC submitted review comments to the Department in a document entitled "Review of Saddleback Ridge Wind Project Visual Impact Assessment" dated January 21, 2011.

SQC evaluated each scenic impact under the Evaluation Criteria described in 35-A M.R.S.A. § 3452 in relation to the proposed project. The scenic impact criteria are: (1) significance of resource, (2) character of surrounding area, (3) typical viewer expectation, (4) development's purpose and context, (5) extent, nature and duration of affected uses, (6) effect on continued uses and enjoyment, (7) and scope and scale of effect of project views. The following is a list of SQC's overall scenic impact ratings for sites within Mount Blue State Park:

Mt. Blue State Park Scenic Resource	Overall Scenic Impact
Mt. Blue Summit	Low-Medium
Center Hill Ledges	Low-Medium
Farmhouse Turnout	Low-Medium

Webb Lake Beach	None
Shoreline North of Beach	None-Low

The Wind Energy Act provides that a great pond is a scenic resource of state or national significance, as defined by 35-M.R.S.A. §3451(9) (D), for the organized territory of the State if it is one of the 66 great ponds identified as having outstanding or significant scenic quality in the “Maine’s Finest Lakes, the Results of the Maine Lakes Study” published by the Maine State Planning Office in October of 1989.

Webb Lake is not listed as having outstanding or significant scenic quality in the Maine’s Finest Lakes Study. Therefore, the Board finds that Webb Lake is not within the definition of a scenic resource of state or national significance pursuant to the Wind Energy Act. The Board further finds that the Wind Energy Act’s direction to consider “related existing uses” refers to related existing uses of the protected resource and not to an adjacent unprotected resource. The review of potential effects of an expedited wind energy development under the Wind Energy Act is focused on impacts to scenic resources of state or national significance and because Webb Lake has not been designated as such a resource, the licensee is not required to demonstrate that the development would not have an unreasonable effect on its scenic character or existing uses.

D. Associated Facilities

The appellants argue that the project’s roads and turbine pads were not properly assessed for their scenic impact and that the Department should have applied the “traditional,” standard of the Site Law, 38 M.R.S.A. Section 484(3) to assess the project’s associated facilities. The appellants point to project plans showing cuts and fills and other details for these associated facilities.

The appellants also cite an April 11, 2011 Land Use Regulation Commission (LURC) Procedural Order to argue that the Department should have undertaken a separate visual impact analysis for associated facilities to determine whether they should be assessed under the “traditional” standard. The appellants contend that if the associated facilities were assessed under the “traditional” standard the Department would have had to take into account the scenic impacts of these facilities to scenic resources of local significance such as Webb Lake.

In response to the appeal, the licensee argues that the appellants fail to identify any regulatory requirement that has not been met, or to identify any scenic impact unaccounted for by the licensee’s VIA and the Department. The licensee points out that the VIA explicitly states that ridgeline roads “will be screened by existing vegetation on either side of the road and would not be highly visible from outside the immediate area” and that the access road “should not be visible to the general public beyond its immediate intersection with Winter Hill Road.” The licensee further argues that the Department properly determined that the associated facilities were not of such an unusual scope, scale or location that the traditional Site Law visual impact standard should be applied in the analysis of those impacts.

Title 35-A § 3452 (2) provides that:

The [Department] shall evaluate the effect of associated facilities of a wind energy development in terms of potential effects on scenic character and existing uses related to scenic character in accordance with [the Site Law] Title 38, section 484, subsection 3, in the manner provided for development other than wind energy development, if the [Department] determines that application of the [Wind Energy Act] standard in subsection 1 to the development may result in unreasonable adverse effects due to the scope, scale, location or other characteristics of the associated facilities. An interested party may submit information regarding this determination to the [Department] for its consideration. The [Department] shall make a determination pursuant to this subsection within 30 days of its acceptance of the application as complete for processing.

The licensee submitted evidence on this issue in its VIA which concludes that the associated facilities for the project (roads, pads, transmission lines, O&M building, and related improvements) will have minimal impact on views from scenic resources of state or national significance and that they will not be of a location, character, or size to cause an unreasonable adverse visual affect on the scenic character of the study area.

Appellant FOMM retained Michael Lawrence Assoc., Landscape Architects and Site Planning Consultants (MLA) to review the licensee's October 2010 VIA. MLA submitted a report titled "Saddleback Ridge Wind Project, Carthage, Maine, Generating Facility-Visual Quality and Scenic Character Report," dated December 20, 2010, assessing the licensee's VIA and the projects potential scenic impacts particularly with respect to Mount Blue State Park and Webb Lake. The December 20, 2010 MLA report raised no issues regarding the project's associated facilities or the potential scenic impact of those facilities. Based on the licensee's submissions, which the Department found credible based on Department staff's own visits to the site, and the lack of any evidence to support a contrary decision, the Department declined to apply the traditional Site Law visual impact standard to the associated facilities.

The Board finds that the licensee adequately addressed the visual impacts of the associated facilities and that no issues were raised within the thirty days within which the Department was required to make a decision to apply the traditional site law visual impact standard. Therefore the Board finds that the Department properly declined to apply the traditional site law standard. The Board finds no evidence to support the application of 38 M.R.S.A. § 484 (3) to the associated facilities of the Saddleback Ridge Wind Project.

The appellants also argue that the licensee's VIA was deficient to the extent that it relied on a hiker survey included with the VIA and that it fails to assess visual impacts from a worst case point of view. The appellants cite a number of comments from the Department's scenic consultant, SQC, to argue that the Department should not have accepted the licensee's VIA.

In its very thorough review of the licensee's VIA the Department's consultant noted the issues which the appellants refer to and found that the VIA was sufficient to make a determination on the impacts of the project. In its January 2011 report on the Saddleback Ridge Wind Project SQC concludes: "Overall (the licensee's) VIA is accurate and clearly

presented. Additional fieldwork and analysis completed for this review generally supports this conclusion. A framework based on the Wind Energy Act's evaluation criteria is systematically applied to all of the state and nationally significant scenic resources."

The Board finds that the licensee's VIA, as supplemented by the January 13, 2011 submission, was sufficient, and that associated facilities were adequately addressed in the VIA and in the Department's review.

E. Cumulative Effects

The appellants argue that the Department did not sufficiently address the potential cumulative visual impacts of the Saddleback Ridge Project and other wind projects in the area. The appellants state that the Wind Energy Act does not specifically mention a cumulative visual impact analysis but they argue that it should have been required to assess the "context of the proposed activity" in accordance with 35-A M.R.S.A. § 3452(3)(D). Alternatively the appellants argue that this review should have been required under Paragraph 1 of the Department's Chapter 372, Policies and Procedures Under the Site Location Law which provides in part: "the Board shall consider the size, location, and nature of the proposed development in relation to: (A) The potential primary, secondary, and cumulative impacts of the development on the character, quality, and uses of the land, air, and water on the development site and on the area likely to be affected by the proposed development." The appellants contend that the Department should have included consideration of projects in planning stages for which no permit applications had yet been submitted to the Department. The appellants urge the Board to utilize a guidance document from the U.S. Environmental Protection Agency to determine the scope of review the Department should have undertaken.

In response to the appeal, the licensee cites Maine case law and a Department guidance document, a Cumulative Impact Assessment Form, for the principle that the Department may only consider cumulative impacts based on existing and proposed development, and may not consider cumulative impacts based on possible future development.

In the consideration of cumulative impacts of a proposed project, the focus is primarily on the impacts of development that currently exists and what will be added by the proposed project. To the extent impacts from un-built projects are considered, the Department is guided by the Law Court's recent instruction in the case of *Hannum v. Maine Board of Environmental Protection*, 2003 ME 123, 832 A.2d 765. In that case the Court found that the Board erred by considering potential impacts of a proposed project in conjunction with potential impacts from other projects of the same type that would likely follow the construction of the one at issue. The Court found that unless there is evidence in the record that developers of such other potential projects have applied for a permit, or are considering applying for a permit, and that the impacts from those future projects could not be minimized or avoided, their consideration amounts to speculation and cannot be a basis for a finding of unreasonable impacts. The Department considers reasonably foreseeable future activities in its assessment of cumulative impacts of a proposed project, a term explained on the NRPA guidance document as an activity will proceed or there is a high probability that the activity will proceed, such as when valid permits have been granted for projects in the vicinity of the

proposed project, projects are constructed or under construction, or applications for permits to construct projects in the vicinity of the proposed project are currently under consideration. The Board finds this language provides useful guidance.

Under the scenic impact standards of the Wind Energy Act, 35-A M.R.S.A. § 3452 (1), only impacts to those resources designated as scenic resources of statewide or national significance are subject to review. The Act also establishes a limit of eight miles for scenic assessments. In accordance with these statutory restrictions and the Department's request, the licensee submitted a view shed analysis of wind power projects that are operational, permitted or with pending applications that could potentially be seen from scenic resources of state or national significance within 8 miles of the Project.

According to the applicants' analysis, the only scenic resource located within 8 miles of the Project and any other operational or proposed wind power project is Halfmoon Pond, which is within 8 miles of the Record Hill Wind Project. However, due to intervening topography, there will be no visibility of the Record Hill Wind Project from Halfmoon Pond. From this assessment the Board concludes that there are no scenic resources of state or national significance which are subject to cumulative visual impacts from the Saddleback Ridge Wind Project.

The Board finds that the Department properly addressed the issue of cumulative visual impacts and properly concluded that the Saddleback Ridge Wind Project would not result in any cumulative visual impacts.

The Board finds the licensee's submissions and analysis of potential visual impacts to the use of the pertinent resources to be an adequate assessment and a demonstration that the development will not significantly compromise the views from the pertinent resources. The Board also finds the review of the evidence and comments submitted on this issue by Scenic Quality Consultants to be credible. Therefore, based upon the evidence in the record, the Board finds that the licensee has adequately assessed the proposed project's potential visual impacts as set forth under the Wind Energy Act and has demonstrated that the project will not significantly compromise views from a scenic resource of state or national significance. The Board finds that the Saddleback Ridge Wind Project will not have an unreasonable adverse effect on the scenic character or existing uses related to scenic character of scenic resources of state or national significance.

7. DISCUSSION AND FINDINGS PERTAINING TO TANGIBLE BENEFIT ISSUES
RAISED IN APPEAL:

The appellants object to the licensee's proposal to make a \$60,000 payment to the Maine Department of Conservation, Bureau of Parks and Lands for land acquisition in the area of Mount Blue State Park as a part of its tangible benefits proposal. In support of this argument the appellants cite a document from a Land Use Regulation Commission (LURC) permitting proceeding for the Bowers Wind Project titled "Memorandum and Third Procedural Order 3" dated April 20, 2011. In that procedural order the Commissioner of the Department of Conservation is reported to have stated that the Department would not be a recipient of any tangible benefits from wind power projects.

The Wind Energy Act directs the Department and Board to presume that an expedited wind energy development provides energy and emissions-related benefits and to make additional findings under the Site Law, 38 M.R.S.A. §484(10), regarding other tangible benefits provided by the development.

The licensee submitted a description of the tangible benefits to be provided by the Saddleback Ridge Wind Project as Section 28 of the application. That submission describes tangible benefits that the project will provide to the State of Maine and to the host community of Carthage, including economic benefits and environmental benefits. The benefits described include employment opportunities, the local purchase of materials and supplies, taxes paid to the host community, and a proposed annual Community Benefit Fund payment. The licensee proposes to contribute at least \$4,000 per turbine per year for the life of the project to the community benefit fund that will be administered by the Town of Carthage and be used at the Town's discretion to provide direct economic benefits to its citizens. This per turbine payment proposal was made pursuant to 35-A MRSA §3454 (2), of the Wind Energy Act as amended in 2010.

The licensee initially proposed to donate \$60,000 to the Maine Bureau of Parks and Lands for a new playground at the beach and campground near Webb Lake in Mount Blue State Park. In comments dated December 9, 2010, the Department of Conservation, Bureau of Parks and Lands (BPL) noted that this proposal is above and beyond the minimum requirements of the law. In the December 9 comments BPL further stated that since negotiating the agreement for the \$60,000 donation, other potential funds have been identified for the playground so the donation should be restructured as a more general contribution to BPL, or more specifically for land acquisition in the vicinity of Mount Blue State Park.

The Board finds that LURC procedural order the appellants cite pertains to a proceeding before LURC, which along with the Bureau of Public Lands, is a part of the Department of Conservation. The decision by the Department of Conservation not to accept a donation in that case may be based on the structural relationship of the public bodies involved in that proceeding. Furthermore, being aware of the language in the LURC procedural order in the Bowers proceeding, the Department asked the Bureau of Public Lands to review the draft Commissioner's order as it relates to tangible benefits in this Department proceeding, and in a memorandum dated October 3, 2011 the Acting Deputy Director of the Bureau of Parks and Lands reaffirmed BPL's intention to accept the previously negotiated donation.

The appellants also argue that only the Governor has the authority to accept gifts on behalf of the state. The Board notes that 12 M.R.S.A. § 1804 (3) specifically gives the director of the Bureau of Parks and Lands the authority to accept donations to be used in advancing land acquisition and other purposes related to the lands the Bureau manages.

The Board has considered the information contained in the record and the arguments of the appellants pertaining to the adequacy of the applicants' tangible benefits proposal. Based upon all of the evidence, the Board finds that the Saddleback Ridge Wind Project satisfies the Tangible Benefits standard of the Wind Energy Act.

8. CONCLUSIONS:

Based on the above findings, the Board concludes that:

- A. The appellants filed a timely appeal.
- B. The Board denies the request for a public hearing on this appeal.
- C. The licensee's proposal to construct a 33 MW wind energy development, known as the Saddleback Ridge Wind Project, in the Towns of Carthage, Canton and Dixfield meets the criteria for a permit pursuant to the Site Location of Development Act, 38 M.R.S.A. § 484, the Natural Resources Protection Act, 38 M.R.S.A. §480-D, and the Wind Energy Act, 35-A M.R.S.A. §§ 3452-3455.

THEREFORE, the Board AFFIRMS the Department's approval of the permit applications filed by SADDLEBACK RIDGE WIND, LLC to construct a 33 MW wind energy development, known as the Saddleback Ridge Wind Project, in the Towns of Carthage, Canton, and Dixfield, Maine, as described in Department Order #L-25137-24-A-N/L-25137-TG-B-N. The Board DENIES the appeal of the Friends of Maine's Mountains, Friends of Saddleback Mountain, Rand Stowell, and the other appellants.

DONE AND DATED AT AUGUSTA, MAINE, THIS _____ DAY OF _____, 2012.

BOARD OF ENVIRONMENTAL PROTECTION

By: _____
Susan M. Lessard, Chair

Saddleback Ridge Wind, LLC // natural Resource Protection Act (NRPA) and Site
Location of Development Act applications

Additional Documents from DEP Licensing Record

- Guidelines / Regulations
 - Assessing Cumulative Impacts to Protected Natural Resources under the Natural Resources Protection Act
 - Chapter 375, No Adverse Environmental Effect Standard of the Site Location Law (Excerpt – Section 10, Control of Noise)
 - Chapter 375, No Adverse Environmental Effect Standard of the Site Location Law (Excerpt – Section 14, No Unreasonable Effect on Scenic Character)



**Bureau of Land and Water Quality
Division of Land Resource Regulation
Licensing Unit**

**Guidelines for Assessing Cumulative Impacts to Protected Natural Resources
under the Natural Resources Protection Act**

1. **APPLICABILITY.** This guidance applies to all licensing staff in the Bureau of Land and Water Quality's Division of Land Resource Regulation (Division). It applies to the processing of applications filed with the Department under the Natural Resources Protection Act (NRPA).
2. **PURPOSE.** This guidance is intended to establish consistent procedures for staff assessments of potential cumulative impacts resulting from activities proposed in NRPA applications processed by the Division of Land Resource Regulation.
3. **RESPONSIBILITIES.**

- 3.1 **COMPLIANCE.** All licensing staff in the Division of Land Resource Regulation are responsible for becoming familiar, and complying with, the contents of this guidance prior to processing an application. The attached appendices are to serve as reference materials throughout the processing of applications. The appendices will be applied to the project as proposed prior to consideration of any proposed mitigation. Mitigation will be considered in terms of offsetting any potential cumulative impacts resulting from a proposed project following completion of the appendices. Supervisors are responsible for ensuring that licensing staff is familiar with and adhere to the procedures outlined in this guidance. Enforcement & Field Services staff Drafting Department Orders will also adhere to this guidance.
- 3.2 **OTHER.** The Licensing Coordinator is responsible for initial development, approval, distribution, and maintenance of this guidance. Policy and Procedures staff in the Bureau of Land & Water Quality will track this guidance. The name of responsible individuals, document title, dates of last revision, and document numbers will be recorded.

4. GUIDELINES AND PROCEDURES.

- 4.1 **ORIGINATION AND CONTENTS.** Division Licensing staff will be trained in the use of the Cumulative Impact Assessment (CIA) form (Appendix A) and Cumulative Impact Assessment Matrix (Matrix) (Appendix B) associated with this guidance. The appendices will be used by Division Licensing staff to identify potential cumulative adverse impacts on protected natural resources during the processing of an NRPA application. The CIA and matrix will be used as guidance for determining whether a proposed activity will have an unreasonable cumulative impact on a protected natural resource, as described in Chapter 310, the Wetland and Waterbodies Protection Rules, Section 5(D)(2). The completed CIA and matrix will be included in the project file. Associated definitions included in this guidance apply to the CIA and matrix.



- 4.2 GUIDANCE DEVELOPMENT AND APPROVAL PROCESS. Approval of this guidance follows the preliminary draft cycle and final approval cycle for Bureau-specific procedures described in SOP No. OC-PE-0001, Standard Operating Procedure Development, Format, Approval, and Distribution, dated June 15, 2001. The Director of the Bureau of Land and Water Quality and the Maine DEP's QAM approve the final guidance.

5. REFERENCES.

- 5.1 MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION QUALITY MANAGEMENT PLAN (JUNE 2001).
- 5.2 MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION STANDARD OPERATING PROCEDURE ON STANDARD OPERATING PROCEDURES (OC-PE-0001).
- 5.3 MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF LAND AND WATER QUALITY, STANDARD OPERATING PROCEDURE SUPPLEMENT TO OC-PE-0001 (DEPLW2001-22).
- 5.4 WETLAND AND WATERBODIES PROTECTION RULES, 38 M.R.S.A. 310.



APPENDIX A: Cumulative Impact* Assessment Form

PRIMARY FACTORS	DESCRIPTORS	INDICATORS	IMPACT RATINGS	IMPACT SCORES								
TYPE & DEGREE OF HARM TO THE RESOURCE	TYPE OF IMPACT	NRPA standards affected; extent of potential direct effects* & indirect effects*	High	3								
			Moderate	2								
			Low	1								
			None	0								
	DEGREE OF IMPACT	Project type (fill, vegetation removal); significance of impact relative to resource	High	3								
			Moderate	2								
			Low	1								
			None	0								
FREQUENCY OF SIMILAR IMPACTS	PREVIOUS IMPACTS TO RESOURCE	The current condition of the resource (e.g. pristine, acceptable, impacted, degraded) <i>Degraded</i>	High	3								
			Moderate	2								
			Low	1								
			None	0								
	THREAT TO RESOURCE	Number of similar activities existing or proposed in the vicinity of project involving that resource.	High	3								
			Moderate	2								
			Low	1								
			None	0								
DURATION* OF ACTIVITY	PERMANENCE	Temporary* v. permanent* alteration; recovery potential; habitat conversion	Permanent	2								
			Temporary	1								
			None	0								
PROXIMITY TO PROTECTED AREAS	LOCATION IN RELATION TO WOSS OR SWH	Type of protected area; type of impact	In resource	3								
			Within 75 ft	2								
			Within 250 ft	1								
			None present	0								
PROXIMITY TO DEVELOPED AREAS	GROWTH MANAGEMENT AREA	Compatible with growth area, comprehensive plan, or approved Growth Management Plan	Incompatible w/ comp plan	3								
			Incompatible w/o comp plan	2								
			Compatible w/o comp plan	1								
			Compatible w/ comp plan	0								
			None	0								
TRADITIONAL USES*	USE OF AREA & RESOURCE	Degree of compatibility with traditional use of area and resource in project vicinity.	None	3								
			Low	2								
			Moderate	1								
			High	0								
ABILITY TO PERFORM AS INTENDED	STABILITY; PERSISTENCE; DESIGN	Design and construction methods appropriate for site and project; likelihood of unintended impacts to resource minimized.	No	1								
			Yes	0								
PUBLIC HEALTH & SAFETY ADDRESSED	DEGREE OF PROTECTION OR SERVICE	Project provides some public service, such as fire protection, emergency access, travel safety	None/Low	2								
			Moderate	1								
			Substantial	0								
TYPE & DEGREE OF BENEFIT FROM ACTIVITY	GAIN IN BENEFIT	Project purpose identifies public need vs. private, private/shared or commercial need.	None/minimal	2								
			Moderate	1								
			Substantial	0								
TOTAL CUMULATIVE IMPACT SEVERITY <div style="float: right;"> SCORE <table border="1"> <tr> <td>Severe</td> <td>21-28</td> </tr> <tr> <td>Strong</td> <td>13-20</td> </tr> <tr> <td>Moderate</td> <td>7-12</td> </tr> <tr> <td>Weak or Negligible</td> <td>0-6</td> </tr> </table> </div>			Severe	21-28	Strong	13-20	Moderate	7-12	Weak or Negligible	0-6		
			Severe	21-28								
			Strong	13-20								
			Moderate	7-12								
			Weak or Negligible	0-6								

*See Definitions for Appendix A.



Definitions associated with Appendix A of the Guidance for Assessing Cumulative Impacts to Protected Natural Resources under the Natural Resources Protection Act.

- A. Cumulative Impact.** The impact on the environment, which results from the incremental impact of the activity when added to other past, present, and reasonably foreseeable future activities regardless of what entity undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant activities taking place over a period of time.
- B. Direct Effects.** Those effects caused by the activity and occur at the same time and place. Direct effects are a subset of cumulative effects.
- C. Duration.** The period of time in which an effect on a resource may exist or remain detectable.
- D. Indirect Effects.** Those effects caused by the activity or use attributed to the activity and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects are a subset of cumulative effects.
- E. Permanent Impact.** The potential long-term effects on the characteristics, or functions and values of the resource that result from a regulated activity.
- F. Reasonably Foreseeable Future Activities.** The activity will proceed or there is a high probability that the activity will proceed, i.e., valid permits have been granted for projects in the vicinity of the proposed project; projects are constructed or under construction, or; applications for permits to construct projects in the vicinity of the proposed project are currently under consideration.
- G. Resource.** The individual protected natural resource specific to the activity proposed in an application.
- H. SWH.** Significant Wildlife Habitat as defined in Section 480-B(10) of the Natural Resources Protection Act.
- I. Temporary Impact.** The potential short-term effects on the characteristics, or functions and values of the resource that result from a regulated activity or the periodic use of a structure. Temporary effects are also those potential effects that can be overcome or avoided through implementation methods during an activity or restoration of the resource following completion of an activity.
- J. Traditional Uses.** The dominant cultural uses of the resource that have occurred in the recent, rather than historical, past.
- K. WOSS.** Wetlands of Special Significance as defined in Chapter 310, Section 4.



APPENDIX B: Potential Cumulative Impact of Development Matrix

LEGEND (see back of manual)

Impact severity Rating Resource significance	Severe 28-20	Strong 20-13	Moderate 12-7	Weak or Negligible 6-0
High				
Medium				
Low				
Unrated				

- UNACCEPTABLE.** High degree of contribution to cumulative impacts in a sensitive or significant resource. May be grounds for project denial.
- MAJOR IMPACT.** High degree of contribution to cumulative impacts in a resource of medium significance; moderate degree of cumulative impact on highly significant resource. May be subject to denial without project re-design or mitigation.
- MODERATE IMPACT.** Some modification to project siting or design, or mitigation necessary to reduce contribution to cumulative impacts.
- MINIMAL IMPACT.** Relatively minor adjustments to plan, siting, or mitigation may be necessary to reduce contributions to cumulative impacts.
- LOW/NO IMPACT.** No perceptible addition to cumulative impacts. No mitigation required.

Chart is recommended method for reviewing potential cumulative impacts and determining level of effort required for mitigation and/or reconsideration of project siting and design.

Appendix B
 Cumulative Impact Assessment Matrix
 DEPLW0631-A2003

10. Control of Noise

A. Preamble. The Board recognizes that the construction, operation and maintenance of developments may cause excessive noise that could degrade the health and welfare of nearby neighbors. It is the intent of the Board to require adequate provision for the control of excessive environmental noise from developments proposed after the effective date of this regulation.

B. Applicability

- (1) This regulation applies to proposed developments within municipalities without a local quantifiable noise standard and in unorganized areas of the State. When a proposed development is located in a municipality which has duly enacted by ordinance an applicable quantifiable noise standard, which (1) contains limits that are not higher than the sound level limits contained in this regulation by more than 5 dBA, and (2) limits or addresses the various types of noises contained in this regulation or all the types of noises generated by the development, that local standard, rather than this regulation, shall be applied by the Board within that municipality for each of the types of sounds the ordinance regulates. This regulation applies to developments located within one municipality when the noise produced by the development is received in another municipality and, in these cases, the Board will also take into consideration the municipalities' quantifiable noise standards, if any.
- (2) This regulation applies to expansions and modifications of developments when such expansions and modifications are proposed after the effective date of this regulation and subject to site location approval, but only to the noise produced by the proposed expansion or modification of the development, unless (1) the existing development was constructed since 1-1-70 and (2) at the time of construction, the existing development was too small to require site location approval. In situations where conditions (1) and (2) above apply, then this regulation applies to the whole development (both existing facility and proposed expansion or modification). This regulation also applies to expansions and modifications of existing developments when such expansions and modifications require an amendment to the development's Site Law permit, but only to the noise produced by the expansion or modification.
- (3) This regulation does not apply to existing developments or portions of existing developments constructed prior to 1-1-70 or approved under the Site Law prior to the effective date of this regulation. This regulation does not apply to relicensing of existing solid waste facilities previously approved under the Site Law.
- (4) The sound level limits contained in this regulation apply only to areas that are defined as protected locations, and to property lines of the proposed development or contiguous property owned by the developer, whichever are farther from the proposed development's regulated sound sources.
- (5) The sound level limits contained in this regulation do not apply to noise received within the development boundary.

NOTE: The Board will reconsider the effect and operation of the regulation one year from its effective date.

C. Sound Level Limits

(1) Sound From Routine Operation of Developments.

- (a) Except as noted in subsections (b) and (c) below, the hourly sound levels resulting from routine operation of the development and measured in accordance with the measurement procedures described in subsection H shall not exceed the following limits:

- (i) At any property line of the development or contiguous property owned by the developer, whichever is farther from the proposed development's regulated sound sources:

75 dBA at any time of day.

- (ii) At any protected location in an area for which the zoning, or, if unzoned, the existing use or use contemplated under a comprehensive plan, is not predominantly commercial, transportation, or industrial;

60 dBA between 7:00 a.m. and 7:00 p.m.

(the "daytime hourly limit"), and

50 dBA between 7:00 p.m. and 7:00 a.m.

(the "nighttime hourly limit").

- (iii) At any protected location in an area for which the zoning, or, if unzoned, the existing use or use contemplated under a comprehensive plan, is predominantly commercial, transportation, or industrial:

70 dBA between 7:00 a.m. and 7:00 p.m.

(the "daytime hourly limit"), and

60 dBA between 7:00 p.m. and 7:00 a.m.

(the "nighttime hourly limit").

- (iv) For the purpose of determining whether the use of an unzoned area is predominantly commercial, transportation, or industrial (e.g. non-residential in nature), the Department shall consider the municipality's comprehensive plan, if any. Furthermore, the usage of properties abutting each protected location shall be determined, and the limits applied for that protected location shall be based upon the usage occurring along the greater portion of the perimeter of that parcel; in the event the portions of the perimeter are equal in usage, the limits applied for that protected location shall be those for a protected location in an area for which the use is not predominantly commercial, transportation, or industrial.

- (v) When a proposed development is to be located in an area where the daytime pre-development ambient hourly sound level at a protected location is equal to or less than 45 dBA and/or the nighttime pre-development ambient hourly sound level at a

protected location is equal to or less than 35 dBA, the hourly sound levels resulting from routine operation of the development and measured in accordance with the measurement procedures described in subsection H shall not exceed the following limits at that protected location:

55 dBA between 7:00 a.m. and 7:00 p.m.
(the "daytime hourly limit"), and
45 dBA between 7:00 p.m. and 7:00 a.m.
(the "nighttime hourly limit").

For the purpose of determining whether a protected location has a daytime or nighttime pre-development ambient hourly sound level equal to or less than 45 dBA or 35 dBA, respectively, the developer may make sound level measurements in accordance with the procedures in subsection H or may estimate the sound-level based upon the population density and proximity to local highways. If the resident population within a circle of 3,000 feet radius around a protected location is greater than 300 persons, or the hourly sound level from highway traffic at a protected location is predicted to be greater than 45 dBA in the daytime or 35 dBA at night (as appropriate for the anticipated operating schedule of the development), then the developer may estimate the daytime or nighttime pre-development ambient hourly sound level to be greater than 45 dBA or 35 dBA, respectively.

NOTE: Highway traffic noise can be predicted using the nomograph method of FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108, December, 1978.

- (vi) Notwithstanding the above, the developer need not measure or estimate the pre-development ambient hourly sound levels at a protected location if he demonstrates, by estimate or example, that the hourly sound levels resulting from routine operation of the development will not exceed 50 dBA in the daytime or 40 dBA at night.
- (b) If the developer chooses to demonstrate by measurement that the daytime and/or nighttime pre-development ambient sound environment at any protected location near the development site exceeds the daytime and/or nighttime limits in subsection 1(a)(ii) or 1(a)(iii) by at least 5 dBA, then the daytime and/or nighttime limits shall be 5 dBA less than the measured daytime and/or nighttime pre-development ambient hourly sound level at the location of the measurement for the corresponding time period.
- (c) For any protected location near an existing development, the hourly sound level limit for routine operation of the existing development and all future expansions of that development shall be the applicable hourly sound level limit of 1(a) or 1(b) above, or, at the developer's election, the existing hourly sound level from routine operation of the existing development plus 3 dBA.
- (d) For the purposes of determining compliance with the above sound level limits, 5 dBA shall be added to the observed levels of any tonal sounds that result from routine operation of the development.

(e) When routine operation of a development produces short duration repetitive sound, the following limits shall apply:

(i) For short duration repetitive sounds, 5 dBA shall be added to the observed levels of the short duration repetitive sounds that result from routine operation of the development for the purposes of determining compliance with the above sound level limits.

(ii) For short duration repetitive sounds resulting from scrap metal, drop forge and metal fabrication operations or developments which the Board determines, due to their character and/or duration, are particularly annoying or pose a threat to the health and welfare of nearby neighbors, 5 dBA shall be added to the observed levels of the short duration repetitive sounds that result from routine operation of the development for the purposes of determining compliance with the above sound level limits, and the maximum sound level of the short duration repetitive sounds shall not exceed the following limits:

(a) At any protected location in an area for which the zoning, or, if unzoned, the existing use or use contemplated under a comprehensive plan, is not predominantly commercial, transportation, or industrial:

65 dBA between 7:00 a.m. and 7:00 p.m., and
55 dBA between 7:00 p.m. and 7:00 a.m.

(b) At any protected location in an area for which the zoning, or, if unzoned, the existing use or use contemplated under a comprehensive plan, is predominantly commercial, transportation, or industrial:

75 dBA between 7:00 a.m. and 7:00 p.m., and
65 dBA between 7:00 p.m. and 7:00 a.m.

(c) The methodology described in subsection 1(a)(iv) shall be used to determine whether the use of an unzoned area is predominantly commercial, transportation, or industrial.

(d) If the developer chooses to demonstrate by measurement that the pre-development ambient hourly sound level at any protected location near the development site exceeds 60 dBA between 7:00 a.m. and 7:00 p.m., and/or 50 dBA between 7:00 p.m. and 7:00 a.m., then the maximum sound level limit for short duration repetitive sound shall be 5 dBA greater than the measured pre-development ambient hourly sound level at the location of the measurement for the corresponding time period.

(e) For any protected location near an existing development, the maximum sound level limit for short duration repetitive sound resulting from routine operation of the existing development and all future expansions and modifications of that development shall be the applicable maximum sound level limit of (e)(ii)(a) or (e)(ii)(b) above, or, at the developer's election, the existing maximum sound level of the short duration repetitive sound resulting from routine operation of the existing development plus 3 dBA.

NOTE: The maximum sound level of the short duration repetitive sound shall be measured using the fast response [L_{AFmax}]. See the definition of maximum sound level.

(2) Sound From Construction of Developments

- (a) The sound from construction activities between 7:00 p.m. and 7:00 a.m. is subject to the following limits:
- (i) Sound from nighttime construction activities shall be subject to the nighttime routine operation sound level limits contained in subsections 1(a) and 1(b).
 - (ii) If construction activities are conducted concurrently with routine operation, then the combined total of construction and routine operation sound shall be subject to the nighttime routine operation sound level limits contained in subsections 1(a) and 1(b).
 - (iii) Higher levels of nighttime construction sound are permitted when a duly issued permit authorizing nighttime construction sound in excess of these limits has been granted by:
 - 1. the local municipality when the duration of the nighttime construction activity is less than or equal to 90 days,
 - 2. the local municipality and the Board when the duration of the nighttime construction activity is greater than 90 days.
- (b) Sound from construction activities between 7:00 a.m. and 7:00 p.m. shall not exceed the following limits at any protected location:

Duration of Activity	Hourly Sound Level Limit
12 hours	87 dBA
8 hours	90 dBA
6 hours	92 dBA
4 hours	95 dBA
3 hours	97 dBA
2 hours	100 dBA
1 hour or less	105 dBA

- (c) All equipment used in construction on development sites shall comply with applicable federal noise regulations and shall include environmental noise control devices in proper working condition, as originally provided with the equipment by its manufacturer.

(3) Sound From Maintenance Activities

- (a) Sound from routine, ongoing maintenance activities shall be considered part of the routine operation of the development and the combined total of the routine maintenance and operation sound shall be subject to the routine operation sound level limits contained in subsection 1.

- (b) Sound from occasional, major, scheduled overhaul activities shall be subject to the construction sound level limits contained in subsection 2. If overhaul activities are conducted concurrently with routine operation and/or construction activities, the combined total of the overhaul, routine operation and construction sound shall be subject to the construction sound level limits contained in subsection 2.

(4) Sound From Production Blasting

Sound exceeding the limits of subsection 1 and resulting from production blasting at a mine or quarry shall be limited as follows:

- (a) Blasting shall not occur in the period between sundown and sunrise the following day or in the period between the hours of 7:00 p.m. and 7:00 a.m., whichever is greater. In addition, no routine production blasting shall be allowed in the daytime on Sundays.
- (b) Blasting shall not occur more frequently than four times per day.
- (c) Sound from blasting shall not exceed the following limits at any protected location:

Number of Blasts Per Day	Sound Level Limit
1	129 dBL
2	126 dBL
3	124 dBL
4	123 dBL

Blast sound shall be measured in peak linear sound level (dBL) with a linear response down to 5 Hz.

NOTE: See Bureau of Mines Report of Investigations 8485 for information on airblast sound levels and pertinent scaled distances.

(5) Exemptions

Sound associated with the following shall be exempt from regulation by the Board:

- (a) Railroad equipment which is subject to federal noise regulations.
- (b) Aircraft operations which are subject to federal noise regulations.
- (c) Registered and inspected vehicles:
- (i) while operating on public ways, or
 - (ii) which enter the development to make a delivery or pickup and which are moving, starting or stopping, but not when they are parked for over 60 minutes in the development.

- (d) Watercraft while underway.
 - (e) Residential developments, except during construction of such developments.
 - (f) Bells, chimes and carillons.
 - (g) occasional sporting, cultural, religious or public events allowed by the local municipality where the only affected protected locations are contained within that municipality.
 - (h) The unamplified human voice and other sounds of natural origin.
 - (i) Firing, fishing and aquacultural activity.
 - (j) Forest management, harvesting and transportation activities.
 - (k) Making, maintaining and grooming snow where the only affected protected locations are contained within the general boundaries of a ski area development.
 - (l) Snow removal, landscaping and street sweeping activities.
 - (m) Emergency maintenance and repairs.
 - (n) Warning signals and alarms.
 - (o) Safety and protective devices installed in accordance with code requirements.
 - (p) Test operations of emergency equipment occurring in the daytime and no more frequently than once per week.
 - (q) Boiler start-up, testing and maintenance operations occurring no more frequently than once per month.
 - (r) Major concrete pours that must extend after 7:00 p.m., when started before 3:00 p.m.
 - (s) Sounds from a regulated development received at a protected location when the generator of the sound has been conveyed a noise easement for that location. This exemption shall only be for the specific noise, land and term covered by the easement.
 - (t) A force majeure event and other causes not reasonably within the control of the owners or operators of the development.
- (6) Noise Abatement Structures.

Noise abatement structures of a non-permanent nature in any one location for a duration of less than one year and erected for the sole purpose of noise control shall not be considered structures as defined in 38 MRSA subsection 482(6).

D. Submissions

(1) Developments with Minor Sound Impact.

An applicant for a proposed development with minor sound impact may choose to file as part of the site location application a statement attesting to the minor nature of the anticipated sound impact of their development. An applicant proposing an expansion or modification of an existing development with minor sound impact may follow the same procedure as described above. For the purpose of this regulation, a development or an expansion or modification of an existing development with minor sound impact means a development where the developer demonstrates, by estimate or example, that the regulated sound from routine operation of the development will not exceed 5 dBA less than the applicable limits established under subsection C. It is the intent of this subsection that an applicant need not conduct sound level measurements to demonstrate that the development or an expansion or modification of an existing development will have a minor sound impact.

NOTE: Examples include subdivisions without structures, office buildings, storage buildings which will not normally be accessed at night, and golf courses.

(2) Other Developments

Technical information shall be submitted describing the applicant's plan and intent to make adequate provision for the control of sound. The applicant's plan shall contain information such as the following, when appropriate:

- (a) Maps and descriptions of the land uses, local zoning and comprehensive plans for the area potentially affected by sounds from the development.
- (b) A description of major sound sources, including tonal sound sources and sources of short duration repetitive sounds, associated with the construction, operation and maintenance of the proposed development, including their locations within the proposed development.
- (c) A description of the daytime and nighttime hourly sound levels and, for short duration repetitive sounds, the maximum sound levels expected to be produced by these sound sources at protected locations near the proposed development.
- (d) A description of the protected locations near the proposed development.
- (e) A description of proposed major sound control measures, including their locations and expected performance.
- (f) A comparison of the expected sound levels from the proposed development with the sound level limits of this regulation.
- (g) A comparison of the expected sound levels from the proposed development with any quantifiable noise standards of the municipality in which the proposed development will be located and of any municipality which may be affected by the noise.

E. Terms and Conditions

The Board may, as a term or condition of approval, establish any reasonable requirement to ensure that the developer has made adequate provision for the control of noise from the development and to reduce the impact of noise on protected locations. Such conditions may include, but are not limited to, enclosing equipment or operations, imposing limits on hours of operation, or requiring the employment of specific design technologies, site design, modes of operation, or traffic patterns.

The sound level limits prescribed in this regulation shall not preclude the Board under Chapter 375.15 from requiring a developer to demonstrate that sound levels from a development will not unreasonably disturb wildlife or adversely affect wildlife populations. In addition, the sound level limits shall not preclude the Board, as a term or condition of approval, from requiring that lower sound level limits be met to ensure that the developer has made adequate provision for the protection of wildlife.

F. Variance From Sound Level Limits

The Board recognizes that there are certain developments or activities associated with development for which noise control measures are not reasonably available. Therefore, the Board or Commissioner may grant a variance from any of the sound level limits contained in this rule upon (1) a showing by the applicant that he or she has made a comprehensive assessment of the available technologies for the development and that the sound level limits cannot practicably be met with any of these available technologies, and (2) a finding by the Board that the proposed development will not have an unreasonable impact on protected locations. In addition, a variance may be granted by the Board or Commissioner if (1) a development is deemed necessary in the interest of national defense or public safety and the applicant has shown that the sound level limits cannot practicably be met without unduly limiting the development's intended function, and (2) a finding is made by the Board or Commissioner that the proposed development will not have an unreasonable impact on protected locations. The Board or Commissioner shall consider the request for a variance as part of the review of a completed Site Location of Development Law application. In granting a variance, the Board or Commissioner may, as a condition of approval, impose terms and conditions to ensure that no unreasonable sound impacts will occur.

G. Definitions

Terms used herein are defined below for the purpose of this noise regulation.

- (1) **AMBIENT SOUND:** At a specified time, the all-encompassing sound associated with a given environment, being usually a composite of sounds from many sources at many directions, near and far, including the specific development of interest.
- (2) **CONSTRUCTION:** Activity and operations associated with the development or expansion of a project or its site.
- (3) **EMERGENCY:** An unforeseen combination of circumstances which calls for immediate action.
- (4) **EMERGENCY MAINTENANCE AND REPAIRS:** Work done in response to an emergency.

- (5) **ENERGY SUM OF A SERIES OF LEVELS:** Ten times the logarithm of the arithmetic sum of the antilogarithms of one-tenth of the levels. [Note: See Section H(4.2).]
- (6) **EXISTING DEVELOPMENT:** A development constructed before 1-1-70 or a development approved under the Site Law prior to the effective date of this regulation or a proposed development for which the site location application is complete for processing on or before the effective date of this regulation. Any development with a site location approval which has been remanded to the Board by a court of competent jurisdiction for further proceedings relating to noise limits or noise levels prior to the effective date of these regulations shall not be deemed an existing development and these regulations shall apply to the existing noise sources at that development.
- (7) **EXISTING HOURLY SOUND LEVEL:** The hourly sound level resulting from routine operation of an existing development prior to the first expansion that is subject to this regulation.
- (8) **EQUIVALENT SOUND LEVEL:** The level of the mean-square A-weighted sound pressure during a stated time period, or equivalently the level of the sound exposure during a stated time period divided by the duration of the period.
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- NOTE: For convenience, a one hour equivalent sound level should begin approximately on the hour.
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- (9) **HISTORIC AREAS:** Historic sites administered by the Bureau of Parks and Recreation of the Maine Department of Conservation, with the exception of the Arnold Trail.
- (10) **HOURLY SOUND LEVEL:** The equivalent sound level for one hour measured or computed in accordance with this regulation.
- (11) **LOCALLY-DESIGNATED PASSIVE RECREATION AREA:** Any site or area designated by a municipality for passive recreation that is open and maintained for public use and which:
- (a) has fixed boundaries,
 - (b) is owned in fee simple by a municipality or is accessible by virtue of public easement,
 - (c) is identified and described in a local comprehensive plan, and
 - (d) has been identified and designated at least nine months prior to the filing of the applicant's Site Location of Development application.
- (12) **MAXIMUM SOUND LEVEL:** Ten times the common logarithm of the square of the ratio of the maximum sound to the reference sound of 20 micropascals. Symbol: L_{AFmax} .
- (13) **MAXIMUM SOUND:** Largest A-weighted and fast exponential-time-weighted sound during a specified time interval. Unit: pascal (Pa).

- (14)RESIDENCE: A building or structure, including manufactured housing, maintained for permanent or seasonal residential occupancy providing living, cooking and sleeping facilities and having permanent indoor or outdoor sanitary facilities, excluding recreational vehicles, tents and watercraft.
- (15)PRE-DEVELOPMENT AMBIENT: The ambient sound at a specified location in the vicinity of a development site prior to the construction and operation of the proposed development or expansion.
- (16)PROTECTED LOCATION: Any location, accessible by foot, on a parcel of land containing a residence or planned residence or approved residential subdivision, house of worship, academic school, college, library, duly licensed hospital or nursing home near the development site at the time a Site Location of Development application is submitted; or any location within a State Park, Baxter State Park, National Park, Historic Area, a nature preserve owned by the Maine or National Audubon Society or the Maine Chapter of the Nature Conservancy, The Appalachian Trail, the Moosehorn National Wildlife Refuge, federally-designated wilderness area, state wilderness area designated by statute (such as the Allagash Wilderness Waterway), or locally-designated passive recreation area; or any location within consolidated public reserve lands designated by rule by the Bureau of Public Lands as a protected location.

At protected locations more than 500 feet from living and sleeping quarters within the above noted buildings or areas, the daytime hourly sound level limits shall apply regardless of the time of day.

Houses of worship, academic schools, libraries, State and National Parks without camping areas, Historic Areas, nature preserves, the Moosehorn National Wildlife Refuge, federally-designated wilderness areas without camping areas, state wilderness areas designated by statute without camping areas, and locally-designated passive recreation areas without camping areas are considered protected locations only during their regular hours of operation and the daytime hourly sound level limits shall apply regardless of the time of day.

Transient living accommodations are generally not considered protected locations; however, in certain special situations where it is determined by the Board that the health and welfare of the guests and/or the economic viability of the establishment will be unreasonably impacted, the Board may designate certain hotels, motels, campsites and duly licensed campgrounds as protected locations.

This term does not include buildings and structures located on leased camp lots, owned by the applicant, used for seasonal purposes.

For purposes of this definition, (1) a residence is considered planned when the owner of the parcel of land on which the residence is to be located has received all applicable building and land use permits and the time for beginning construction under such permits has not expired, and (2) a residential subdivision is considered approved when the developer has received all applicable land use permits for the subdivision and the time for beginning construction under such permits has not expired.

- (17) **QUANTIFIABLE NOISE STANDARD:** A numerical limit governing noise from developments that has been duly enacted by ordinance by a local municipality.
- (18) **ROUTINE OPERATION:** Regular and recurrent operation of regulated sound sources associated with the purpose of the development and operating on the development site.
- (19) **SHORT DURATION REPETITIVE SOUNDS:** A sequence of repetitive sounds which occur more than once within an hour, each clearly discernible as an event and causing an increase in the sound level of at least 6 dBA on the fast meter response above the sound level observed immediately before and after the event, each typically less than ten seconds in duration, and which are inherent to the process or operation of the development and are foreseeable.
- (20) **SOUND COMPONENT:** The measurable sound from an audibly identifiable source or group of sources.
- (21) **SOUND LEVEL:** Ten times the common logarithm of the square of the ratio of the frequency-weighted and time-exponentially averaged sound pressure to the reference sound of 20 micropascals. For the purpose of this regulation, sound level measurements are obtained using the A-weighted frequency response and fast dynamic response of the measuring system, unless otherwise noted.
- (22) **SOUND PRESSURE:** Root-mean-square of the instantaneous sound pressures in a stated frequency band and during a specified time interval. Unit: pascal (Pa).
- (23) **SOUND PRESSURE LEVEL:** Ten times the common logarithm of the square of the ratio of the sound pressure to the reference sound pressure of 20 micropascals.
- (24) **TONAL SOUND:** for the purpose of this regulation, a tonal sound exists if, at a protected location, the one-third octave band sound pressure level in the band containing the tonal sound exceeds the arithmetic average of the sound pressure levels of the two contiguous one-third octave bands by 5 dB for center frequencies at or between 500 Hz and 10,000 Hz, by 8 dB for center frequencies at or between 160 and 400 Hz, and by 15 dB for center frequencies at or between 25 Hz and 125 Hz.

Additional acoustical terms used in work associated with this regulation shall be used in accordance with the following American National Standards Institute (ANSI) standards:

ANSI S12.9-1988 - American National Standard Quantities and Procedures for Description and Measurements of Environmental Sound, Part 1;

ANSI S3.20-1973 - American National Standard Psychoacoustical Terminology;

ANSI S1.1-1960 - American National Standard Acoustical Terminology.

H. Measurement Procedures

(1) Scope. These procedures specify measurement criteria and methodology for use, with applications, compliance testing and enforcement. They provide methods for measuring the ambient sound and the sound from routine operation of the development, and define the information to be reported. The same methods shall be used for measuring the sound of construction, maintenance and production blasting activities. For measurement of the sound of production blasting activities for comparison with the limits of subsection C(4)(c), these same methods shall be used with the substitution of the linear sound level for the A-weighted sound level.

(2) Measurement Criteria

2.1 Measurement Personnel

Measurements shall be supervised by personnel who are well qualified by training and experience in measurement and evaluation of environmental sound, or by personnel trained to operate under a specific measurement plan approved by the Board or Commissioner.

2.2 Measurement Instrumentation

- (a) A sound level meter or alternative sound level measurement system used shall meet all of the Type 1 or 2 performance requirements of American National Standard Specifications for Sound Level Meters, ANSI S1.4-1983.
- (b) An integrating sound level meter (or measurement system) shall also meet the Type 1 or 2 performance requirements for integrating/averaging in the International Electrotechnical Commission Standard on Integrating-Averaging Sound Level Meters, IEC Publication 804 (1985).
- (c) A filter for determining the existence of tonal sounds shall meet all the requirements of American National Standard Specification for Octave-Band and Fractional Octave-Band Analog and Digital Filters, ANSI S1.11-1986 for Order 3, Type 3-D performance.
- (d) An acoustical calibrator shall be used of a type recommended by the manufacturer of the sound level meter and that meets the requirements of American National Standard Specification for Acoustical Calibrators, ANSI S1.40-1984.
- (e) A microphone windscreen shall be used of a type recommended by the manufacturer of the sound level meter.

2.3 Calibration

- (a) The sound level meter shall have been calibrated by a laboratory within 12 months of the measurement, and the microphone's response shall be traceable to the National Bureau of Standards.
- (b) Field calibrations shall be recorded before and after each measurement period and at shorter intervals if recommended by the manufacturer.

2.4 Measurement Location, Configuration and Environment

- (a) Except as noted in subsection (b) below, measurement locations shall be at nearby protected locations that are most likely affected by the sound from routine operation of the development.
- (b) For determining compliance with the 75 dBA property line hourly sound level limit described in subsection C(1)(a)(i), measurement locations shall be selected at the property lines of the proposed development or contiguous property owned by the developer, as appropriate.
- (c) The microphone shall be positioned at a height of approximately 4 to 5 feet above the ground, and oriented in accordance with the manufacturer's recommendations.
- (d) Measurement locations should be selected so that no vertical reflective surface exceeding the microphone height is located within 30 feet. When this is not possible, the measurement location may be closer than 30 feet to the reflective surface, but under no circumstances shall it be closer than 6 feet.
- (e) When possible, measurement locations should be at least 50 feet from any regulated sound source on the development.
- (f) Measurement periods shall be avoided when the local wind speed exceeds 12 mph and/or precipitation would affect the measurement results.

2.5 Measurement Plans. Plans for measurement of pre-development ambient sound or post-development sound may be discussed with the Department staff.

(3) Measurement of Ambient Sound

3.1 Pre-Development Ambient Sound

Measurements of the pre-development ambient sound are required only when the developer elects to establish the sound level limit in accordance with subsections C(1)(b) and C(1)(e)(ii)(d) for a development in an area with high ambient sound levels, such as near highways, airports, or pre-existing developments; or when the developer elects to establish that the daytime and nighttime ambient hourly sound levels at representative protected locations exceed 45 dBA and 35 dBA, respectively.

- (a) Measurements shall be made at representative protected locations for periods of time sufficient to adequately characterize the ambient sound. At a minimum, measurements shall be made on three different weekdays (Monday through Friday) during all hours that the development will operate. If the proposed development will operate on Saturdays and/or Sundays, measurements shall also be made during all hours that the development will operate.

- (b) Measurement periods with particularly high ambient sounds, such as during holiday traffic activity, significant insect activity or high coastline waves, should generally be avoided.
- (c) At any measurement location the daytime and nighttime ambient hourly sound level shall be computed by arithmetically averaging the daytime and nighttime values of the measured one hour equivalent sound levels. Multiple values, if they exist, for any specific hour on any specific day shall first be averaged before the computation described above.

3.2 Post-Development Ambient Sound

- (a) Measurements of the post-development ambient one hour equivalent sound levels and, if short duration repetitive sounds are produced by the development, the maximum sound levels made at nearby protected locations and during representative routine operation of the development that are not greater than the applicable limits of subsection C clearly indicate compliance with those limits.
 - (b) Compliance with the limits of subsection C(1)(b) may also be demonstrated by showing that the post-development ambient hourly sound level, measured in accordance with the procedures of subsection 3.1 above during routine operation of the development, does not exceed the pre-development ambient hourly sound level by more than one decibel, and that the sound from routine operation of the development is not characterized by either tonal sounds or short duration repetitive sounds.
 - (c) Compliance with the limits of subsection C(1)(e)(ii)(d) may also be demonstrated by showing that the post development maximum sound level of any short duration repetitive sound, measured in accordance with the procedures of subsection 3.1 above, during routine operation of the development, does not exceed the pre-development ambient hourly sound level by more than five decibels.
 - (d) If any of the conditions in (a), (b) or (c) above are not met, compliance with respect to the applicable limits must be determined by measuring the sound from routine operation of the development in accordance with the procedures described in subsection 4.
- (4) Measurement of the Sound from Routine Operation of Developments.

4.1 General

- (a) Measurements of the sound from routine operation of developments are generally necessary only for specific compliance testing purposes in the event that community complaints result from operation of the development, for validation of an applicant's calculated sound levels when requested by the Board or Commissioner, for determination of existing hourly sound levels for an existing development or for enforcement by the Department.
- (b) Measurements shall be obtained during representative weather conditions when the development sound is most clearly noticeable. Preferable weather conditions for sound

measurements at distances greater than about 500 feet from the sound source include overcast days when the measurement location is downwind of the development and inversion periods (which most commonly occur at night).

- (c) Measurements of the development sound shall be made so as to exclude the contribution of sound from development equipment that is exempt from this regulation.

4.2 Measurement of the Sound Levels Resulting from Routine Operation of the Development.

- (a) When the ambient sound levels are greater than the sound level limits, additional measurements can be used to determine the hourly sound level that results from routine operation of the development. These additional measurements may include diagnostic measurements such as measurements made close to the development and extrapolated to the protected location, special checkmark measurement techniques that include the separate identification of audible sound sources, or the use of sound level meters with pause capabilities that allow the operator to exclude non-development sounds.
- (b) For the purposes of computing the hourly sound level resulting from routine operation of the development, sample diagnostic measurements may be made to obtain the one hour equivalent sound levels for each sound component.
- (c) Identification of tonal sounds produced by the routine operation of a development for the purpose of adding the 5 dBA penalty in accordance with subsection C(1)(d) requires aural perception by the measurer, followed by use of one-third octave band spectrum analysis instrumentation. If one or more of the sounds of routine operation of the development are found to be tonal sounds, the hourly sound level component for tonal sounds shall be computed by adding 5 dBA to the one hour equivalent sound level for those sounds.
- (d) Identification of short duration repetitive sounds produced by routine operation of a development requires careful observations. For the sound to be classified as short duration repetitive sound, the source(s) must be inherent to the process or operation of the development and not the result of an unforeseeable occurrence. If one or more of the sounds of routine operation of the development are found to be short duration repetitive sounds, the hourly sound level component for short duration repetitive sounds shall be computed by adding 5 dBA to the one hour equivalent sound level for those sounds. If required, the maximum sound levels of short duration repetitive sounds shall be measured using the fast response $[L_{AFmax}]$. The duration and the frequency of occurrence of the events shall also be measured. In some cases, the sound exposure levels of the events may be measured. The one hour equivalent sound level of a short duration repetitive sound may be determined from measurements of the maximum sound level during the events, the duration and frequency of occurrence of the events, and their sound exposure levels.
- (e) The daytime or nighttime hourly sound level resulting from routine operation of a development is the energy sum of the hourly sound level components from the development, including appropriate penalties, (see (c) and (d) above). If the energy sum

does not exceed the appropriate daytime or nighttime sound level limit, then the development is in compliance with that sound level limit at that protected location.

- (5) Reporting Sound Measurement Data. The sound measurement data report should include the following:
- (a) The dates, days of the week and hours of the day when measurements were made.
 - (b) The wind direction and speed, temperature, humidity and sky condition.
 - (c) Identification of all measurement equipment by make, model and serial number.
 - (d) The most recent dates of laboratory calibration of sound level measuring equipment.
 - (e) The dates, times and results of all field calibrations during the measurements.
 - (f) The applicable sound level limits, together with the appropriate hourly sound levels and the measurement data from which they were computed, including data relevant to either tonal or short duration repetitive sounds.
 - (g) A sketch of the site, not necessarily to scale, orienting the development, the measurement locations, topographic features and relevant distances, and containing sufficient information for another investigator to repeat the measurements under similar conditions.
 - (h) A description of the sound from the development and the existing environment by character and location.

14. No Unreasonable Effect on Scenic Character

A. Preamble. The Board considers scenic character to be one of Maine's most important assets. The Board also feels that visual surroundings strongly influence people's behavior.

B. Scope of Review. In determining whether the proposed development will have an unreasonable adverse effect on the scenic character of the surrounding area, the Board shall consider all relevant evidence to that effect, such as evidence that:

- (1) The design of the proposed development takes into account the scenic character of the surrounding area.
- (2) A development which is not in keeping with the surrounding scenic character will be located, designed and landscaped to minimize its visual impact to the fullest extent possible.
- (3) Structures will be designed and landscaped to minimize their visual impact on the surrounding area.

NOTE: The following are GUIDELINES for the landscaping of parking lots, which are structures pursuant to 38 M.R.S.A. Section 482(6) (B).

- (a) Lighting will be shielded from adjacent highways and residential areas.
- (b) Curbed planting strips will be utilized in parking areas of 2 acres or more. Planting strips will be a minimum of ten (10) feet wide and spaced between every second double bay parking aisle or 200 feet, whichever is less.
- (c) When the parking lots are adjacent to a residential use, landscaping and/or architectural screens will be utilized to provide an effective perimeter separation area between property lines and the edge of the pavement and/or structures. There will be a minimum setback of fifteen (15) feet from the property line. The Board may require a similar provision when the parking lot is adjacent to other land uses.
- (d) Planting and maintenance program specifications will be developed to provide the earliest establishment of landscape materials and their maintenance.
- (e) Planting specifications:
 - (i) Shrubs will be planted with a 24" minimum size for those specified by spread.
 - (ii) Shrubs will be planted with a 36" minimum size for those specified by height.
 - (iii) Shade trees will be highcrowned species with ascending or lateral branching habit indigenous to the area, tolerant to existing soils and urbanized conditions, two-inch minimum caliper measured six inches up from the base, and planted a maximum of 30' on center.

- (iv) Flowering and evergreen trees will be a minimum of 7' tall and planted a maximum of 20' on center.
 - (v) Selections for ground cover will reflect the project's function, expected foot traffic, exposure, and maintenance program.
 - (f) Provisions will be made to supply water to planted islands and other vegetated areas.
 - (4) The plans for the proposed development provide for the preservation of existing elements of the development site which contribute to the maintenance of scenic character.
- C. Submissions.** Applications for approval of proposed developments shall include evidence that affirmatively demonstrates that there will be no unreasonable adverse effect on the scenic character of the surrounding area, including information such as the following, when appropriate:
- (1) Sketches of the proposed development indicating how the development fits into the scenic character of the area.
 - (2) Landscaping plans for minimizing the visual impact of the parking lots, mining operations and other types of developments.
- D. Terms and Conditions.** The Board may, as a term or condition of approval, establish any reasonable requirement to ensure that the proposed development will have no unreasonable adverse effect on scenic character, such as requiring that:
- (1) Illumination of the development be limited.
 - (2) Vegetative or architectural screens be established.

Saddleback Ridge Wind, LLC // natural Resource Protection Act (NRPA) and Site Location of Development Act applications

Additional Documents from DEP Licensing Record

- Technical Memorandum (Enrad Consulting – May 4, 2011)

Technical Memorandum

To: Mark Margerum, MDEP project manager
From: Warren Brown, EnRad Consulting
Date: May 4, 2011
Re: REVIEW – Saddleback Ridge Wind Project turbine blade change noise assessment

The reviewer notes, the proposed turbine change from the GE 2.75-100 to the GE 2.75-103 with a resulting decreased individual turbine sound power level of 1.5 dBA. The noise impact study subsequently proposes a reduction in the extent and use of nighttime NRO (previously turbines 6-10) to turbines 8 (NRO 104) and 9 (NRO 103) only.

Modeling results are essentially unchanged from the previously proposed turbine/NRO configuration. RSG indicates that the predicted sound level at the nearest nonparticipating residential protective location (B-002) is 45.3 dBA without NRO and 45 dBA with respective NRO settings on turbines 8 and 9.

The proposed application of NRO to turbines 8 and 9 are confirmed by the applicant's consultant RSG by two common methods to account for ground attenuation and modeling uncertainties as employed in MDEP wind turbine project applications.

Saddleback Ridge Wind (SRW) proposes to include in any post-construction monitoring plan a demonstration of (nighttime) compliance with all turbines set in normal operating mode – predicted sound level at (B-002) of 45.3 dBA.

RECOMMENDATIONS

In my opinion the Saddleback Ridge Wind Project wind turbine blade change noise assessment is reasonable and technically correct according to standard engineering practices and the Department Regulations on Control of Noise (06-096 CMR 375.10).

The January 21, 2011 SRW Noise Impact Assessment Peer Review Conclusion with recommendations remains appropriate for the newly proposed design involving NRO at only turbines 8 and 9. Operational testing without NRO should be permitted only after a successful demonstration of nighttime compliance sound levels less than 45 dBA, inclusive of tonal and SDRS penalties.